

What is Claimed is:

1. A read assembly module in a storage controller for concatenating data segments, comprising:
 - a first register for receiving data segments and a
5 data start address; and
 - a second register for concatenating data segments having different data segment size.
2. The read assembly module of Claim 1, further comprising:
 - 10 a third register that holds data before it is sent to the second register; and
 - a fourth register for padding data segments, if padding is needed.
3. The read assembly module of Claim 1,
15 interfaces with a read command queue that is controlled by a controller.
4. The read assembly module of Claim 1, interfaces with a FIFO unit for storing concatenated data segments.
- 20 5. A system for concatenating data segments before the data segments are sent to a requesting host system, comprising:
 - a read assembly module;
 - a read command queue which provides information to
25 the read assembly module; and
 - a controller that controls the read command queue.

6. The system of Claim 5, where the read assembly module includes a first register for receiving data segments and a data start address; and

a second register for concatenating data segments
5 having different data segment size.

7. The system of Claim 6, where the read assembly module also includes a third register that holds data before it is sent to the second register; and a fourth register for padding data segments, if
10 padding is needed.

8. The system of Claim 5, further comprising:
a FIFO for storing concatenated data segments.

9. The system of Claim 5, where the read command queue includes the data start address and data length.

15 10. The system of Claim 9, where a data length counter keeps a data length count.

11. The system of Claim 9, where a data start register maintains the data start address.

12. A method for concatenating data segments
20 before the data segments are sent to a requesting host system, comprising:

receiving data start address; and

assembling data segments such that the segments appear contiguous.

25 13. The method of Claim 12, further comprising:
maintaining data segment length of assembled data.